

CLAIMS

1. A method of restricting data access in a receiver/decoder having a memory, the method comprising the steps of:
 - 5 assigning a plurality of sets of access rights to the data, each set of access rights being assigned to at least one party;
storing the data, the sets of access rights and an identifier for each party in a memory of the receiver/decoder;
comparing the identifier of a party requesting access to the data with the or
10 each identifier stored in the memory; and
providing the party with the set of access rights assigned thereto in the memory of the receiver/decoder.
- 15 2. A method according to Claim 1, wherein the sets of access rights are stored in a header for the data.
3. A method according to Claim 1 or 2, wherein the identifiers for the parties are stored in a header for the data.
- 20 4. A method according to any preceding claim, wherein the data is downloaded from a bitstream transmitted by a transmitting system, the sets of access rights and identifiers for the parties being stored within the data at the transmitting system.
- 25 5. A method of restricting access to data broadcast in a digital broadcast system, said method comprising the steps, at a transmitting system, of:
 - assigning a plurality of sets of access rights to the data, each set of access rights being assigned to at least one party;
storing the sets of access rights and identifiers for the parties within the data;
and
30 transmitting the data;
and, at a receiver/decoder having a memory, the steps of:
downloading and storing the transmitted data in the memory of the

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receiver/decoder;

comparing the identifier of a party requesting access to the data with the identifiers stored in the memory; and

providing the party with the set of access rights assigned thereto in the memory of the receiver/decoder.

6. A method according to Claim 5, wherein the data is transmitted in a digital datastream.

7. A method according to any preceding claim, in which a further set of access rights is assigned to at least one party whose identifier is not stored in the memory of the receiver/decoder, such a party requesting access to the data being provided with the further set of access rights.

8. A method according to any preceding claim, wherein a particular set of access rights is assigned to one party only, preferably the author of the data.

9. A method according to any preceding claim, wherein a particular set of access rights is assigned to a group of parties, identifiers for each of the members of the group being stored in the memory of the receiver/decoder.

10. A method according to any preceding claim, wherein a set of access rights is used to determine whether a party is prohibited from reading the data.

11. A method according to any preceding claim, wherein a set of access rights is used to determine whether a party is prohibited from overwriting the data.

12. A method according to any preceding claim, wherein the data is stored as files and directories in the memory of the receiver/decoder.

13. A method according to Claim 12, wherein the arborescence of the files and directories is recorded in the memory of the receiver/decoder.

14. A method according to Claim 13, wherein an identifier of the directory, if any, immediately preceding a file or directory in the arborescence of the data is stored in association with that file and directory.

5 15. A method according to Claim 14, wherein the identifier is stored in a header of that file or directory.

16. A method according to any preceding claim, wherein the data is stored in a Flash memory volume of the receiver/decoder.

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17. Apparatus for restricting access to data stored in a memory of a receiver/decoder, a plurality of sets of access rights being assigned to the data, each set of access rights being assigned to at least one party, an identifier for each party being stored in the receiver/decoder, the apparatus comprising:

15 means for comparing the identifier of a party requesting access to the data with the identifiers stored in the memory; and

means for providing the party with the set of access rights assigned thereto in the memory of the receiver/decoder.

20 18. A receiver/decoder comprising a memory for storing data, a plurality of sets of access rights assigned to the data and an identifier for each party, and apparatus for restricting access to the data as claimed in Claim 17.

19. A transmission system comprising:

25 means for assigning a plurality of sets of access rights to the data, each set of access rights being assigned to at least one party; -

means for storing the access rights and identifiers for the parties within the data; and

means for transmitting a bitstream including said data.

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20. A combination of a receiver/decoder according to Claim 18 and a transmission system according to Claim 19.

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21. A method of recording the arborescence of data stored as files and directories, said method comprising the step of storing in association with each file and directory an identifier of the directory, if any, immediately preceding that file or directory in the arborescence of the data.

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22. A method according to Claim 21, wherein the identifier comprises a unique code assigned to the directory.

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23. A method according to Claim 21 or 22, wherein the identifier is stored in a header of the file or directory.

24. A method according to Claim 23, wherein at least part of the data is stored in a Flash memory volume, preferably wholly within the Flash memory volume.

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25. A method according to Claim 24, wherein a virtual arborescence of the data stored in the Flash memory volume is created and stored in a RAM memory volume.

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26. A method according to Claim 24 or 25, wherein the header of a file stored in the Flash memory volume is stored in a dedicated block of Flash memory.

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27. A method according to any of Claims 21 to 26, wherein the stored identifier is changed when a file or directory is moved to immediately precede another directory.

28. A method according to any of Claims 21 to 27, wherein the data is stored in a receiver/decoder.

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29. Apparatus for recording the arborescence of data stored as files and directories, said apparatus comprising means for storing in association with each file and directory an identifier of the directory, if any, immediately preceding that file or directory in the arborescence of the data.

30. A receiver/decoder comprising apparatus according to Claim 29.

31. A method of transferring blocks of data between pages of memory to enable fresh data to be stored in said memory, said memory comprising a plurality of pages, one page of said memory being designated as a source page comprising at least one valid block containing valid data and at least one invalid block containing invalid data, and at least one of the pages of memory being designated as a transfer page, the method comprising the step of:

5 copying the or each valid block from the source page into said transfer page, at least one such block having a position in said transfer page different from its position in the source page; and
10 erasing the source page.

32. A method according to Claim 31, wherein the data is subsequently stored next to the copied valid blocks in the transfer page.

15 33. A method of storing data in memory, said memory comprising a plurality of pages, one page of said memory comprising a source page comprising at least one valid block containing valid data and at least one invalid block containing invalid data, and at least one of the pages of memory being designated as a transfer page initially comprising only free blocks, the method comprising the steps of:

20 copying the or each valid block from the source page into said transfer page, at least one such block having a position in said transfer page different from its position in the source page;

erasing the source page; and

25 storing the data in said transfer page.

34. A method according to any of Claims 31 to 33, wherein the or each valid block is copied into the transfer page in such a manner as to create the largest unfragmented memory area in the transfer page for receiving the fresh data.

30 35. A method according to any of Claims 31 to 34, wherein the erased source page is redesignated as a new transfer page, preferably immediately after erasure thereof.

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36. A method according to any of Claims 31 to 35, wherein a page is designated as a source page in dependence on the cumulative size of the invalid blocks of the page.

5 37. A method according to Claim 36, wherein the source page is a page having at least one invalid block, said at least one invalid block having a cumulative size equal to or greater than the size of the fresh data.

10 38. A method according to any of Claims 31 to 37, wherein the blocks have a variable size.

39. A method according to any of Claims 31 to 38, wherein the memory comprises a memory in which data is not freely writable, preferably a Flash memory volume.

15 40. A method according to Claim 39, wherein a valid block is changed to an invalid block by changing the value of a one-bit flag stored in that block.

41. A method according to Claim 40, wherein the one-bit flag is stored in the header of that block.

20 42. A method according to any of Claims 31 to 41, wherein the memory comprises a memory volume of a receiver/decoder.

25 43. A method according to Claim 42, wherein the data is downloaded from a bitstream.

44. A method according to Claim 43, wherein the data is formatted in the form of MPEG tables.

30 45. Apparatus for transferring blocks of data between pages of memory to enable fresh data to be stored in said memory, said memory comprising a plurality of pages, one page of said memory being designated as a source page comprising at least one

valid block containing valid data and at least one invalid block containing invalid data, and at least one of the pages of memory being designated as a transfer page, said apparatus comprising:

5 means for copying the or each valid block from the source page into said transfer page, at least one such block having a position in said transfer page different from its position in the source page; and

means for erasing the source page.

10 46. A receiver/decoder comprising apparatus according to Claim 45.

47. A method of restricting data access in a receiver/decoder substantially as herein described with reference to the accompanying drawings.

15 48. A method of restricting access to data broadcast in a digital broadcast system substantially as herein described with reference to the accompanying drawings.

49. Apparatus for restricting access to data stored in a memory of a receiver/decoder substantially as herein described with reference to the accompanying drawings.

20 50. A transmission system substantially as herein described with reference to the accompanying drawings.

25 51. A method of, or apparatus for, recording the arborescence of data stored as files and directories substantially as herein described.

52. Apparatus for, or a method of, transferring blocks of data between pages of memory substantially as herein described with reference to the accompanying drawings.

30 53. A method of storing data in memory substantially as herein described with reference to the accompanying drawings.